

REMARKS

This application has been reviewed in light of the non-final Office Action mailed on October 28, 2008. Claims 1-7 are pending in the application with Claims 1, 4, 6, and 7 being in independent form. By the present amendment, the specification and Claims 1, 4, 6, and 7 have been amended. No new matter or issues are believed to be introduced by the amendments.

The Examiner objected to the specification. The specification has been amended to comply with the Examiner's requests. Applicant therefore respectfully requests that the objection to the specification be withdrawn.

Claims 1, 3, and 4 were rejected under 35 U.S.C. §103(a) as being unpatentable over Tong et al. (U.S. Patent No. 6,744,744) in view of Dotsch et al. (U.S. Patent No. 6,513,140) and Zhang (U.S. Patent No. 6,968,494). The rejection is respectfully traversed.

Claim 1, as amended herein, recites, *inter alia*, as follows:

“...wherein the **first variable rate of the interleaving is different than the second variable rate** of the puncturing so that the interleaving and the puncturing are operatively **independent of each other**.” (emphasis added)

The applied combination of Tong, Dotsch, and Zhang fail to disclose or suggest “...wherein the first variable rate of the interleaving is different than the second variable rate of the puncturing so that the interleaving and the puncturing are operatively independent of each other,” as recited in amended independent Claim 1.

At page 7 of the present Office Action, the Examiner admitted that Tong does not teach “a modulator for modulating information from the encoder in a transmission signal; symbols; dynamically selecting a coding rate; puncturing being controlled dynamically by the selected coding rate.” The Examiner relied on Dotsch and Zhang to teach such features.

As understood by Applicant, Dotsch teaches a method for permitting a convolutional code to be decoded more favorably in terms of outlay in a receiver structure comprising a combined equalizer and turbo decoder, and to configure a convolutional decoder, which provides a second item of reliability information for symbols which are transmitted in code, and can be used to implement the combined receiver structure (column 3, lines 43-50).

In other words, Dotsch uses a first item of reliability information and a second item of reliability information to effect decoding (Abstract). In contrast, in the present disclosure, and as recited in the amended independent Claims, the interleaving and puncturing are performed at two different rates so that the interleaving schemes do not depend on the rate of puncturing. Thus, interleaving and puncturing are performed at different variable rates with respect to each other so that one function does not depend on the other function, as recited in the amended Claims of the present disclosure. Support for such feature can be found at least at page 2, lines 23-25, page 3, lines 1-2, and page 7, lines 16-20 of the present disclosure. Dotsch clearly does not describe such process of decoding because Dotsch teaches a different type of decoding methodology related to items of reliability information.

As understood by Applicant, Zhang teaches a method and apparatus for transmitting an input data signal over an information channel, where the input data signal comprises a sequence of data blocks. A puncture coded signal is generated for each data block in the sequence of data blocks. The total number of bits in the puncture coded signal is equal to the number of bits in a particular data block plus additional error correcting bits used to perform error correction at a receiver. The number of error correcting bits is adaptively adjusted for each data block in response to a channel quality measure for the information channel. (Column 1, lines 39-49)

In other words, in Zhang, the generated puncture coded signal has a total number of bits that is equal to a number of bits in the received data signal plus an adjustable number of redundant error correcting bits. Namely, for each data block in the received data signal or the sequence of data blocks, the puncture encoder 112 generates an adjustable number of redundant bits as determined by the adaptive controller 110 in response to a channel quality measure. (Column 3, lines 19-22). In contrast, in the present disclosure, and as recited in the amended independent Claims, the interleaving and puncturing are performed at two different rates so that the interleaving schemes do not depend on the rate of puncturing. Thus, interleaving and puncturing are performed at different variable rates with respect to each other so that one function does not depend on the other function, as recited in the amended Claims of the present disclosure. Support for such feature can be found at least at page 2, lines 23-25, page 3, lines 1-2, and page 7, lines 16-20 of the present disclosure. Zhang clearly does not describe such process of decoding because Zhang teaches a different type of decoding methodology related to an adjustable number of redundant bits.

Accordingly, the withdrawal of the rejection under 35 U.S.C. §103(a) with respect to Claim 1 and allowance thereof is respectfully requested.

Independent Claim 4 includes the same or similar limitations to those of Claim 1, and is allowable over the prior art of record for at least the same reasons presented above for the patentability of independent Claim 1.

Dependent Claim 3 is allowable over the prior art of record for at least the same reasons presented above for the patentability of independent Claim 1. Accordingly, the withdrawal of the rejection under 35 U.S.C. §103(a) with respect to dependent Claim 3, and allowance thereof is respectfully requested.

Claims 2 and 5 were rejected under 35 U.S.C. §103(a) as being unpatentable over Tong in view of Dotsch and Zhang as applied to Claims 1 and 5 above, and further in view of Farrell et al. (U.S. Patent No. 6,643,331). The rejection is respectfully traversed.

Dependent Claims 2 and 5, are allowable over the prior art of record for at least the same reasons presented above for the patentability of independent Claims 1 and 4. Accordingly, the withdrawal of the rejection under 35 U.S.C. §103(a) with respect to dependent Claims 2 and 5, and allowance thereof are respectfully requested.

Claims 6 and 7 were rejected under 35 U.S.C. §103(a) as being unpatentable over Shiu et al. (U.S. Patent No. 6,798,826) in view of Abe et al. (U.S. Patent No. 6,272,123). The rejection is respectfully traversed.

Claim 6, as amended herein, recites, *inter alia*, as follows:

“...wherein interleaving occurs at a first variable rate and puncturing occurs at a second variable rate, where the first and second variable rates are different so that the interleaving and the puncturing are operatively independent of each other.” (emphasis added)

The applied combination of Shiu and Abe fail to disclose or suggest “...wherein interleaving occurs at a first variable rate and puncturing occurs at a second variable rate, where the first and second variable rates are different so that the interleaving and the puncturing are operatively independent of each other,” as recited in amended independent Claim 6.

At page 13 of the present Office Action, the Examiner admitted that Shiu does not teach “a control unit for dynamically indicating a coding rate that has been used for encoding the transmission signal; determining an error correction unit for correcting errors in the demodulated information, the error correcting unit being arranged to read the demodulated information from the memory in de-interleaving terms.” The Examiner relied on Abe to teach such features.

As understood by Applicant, Abe provides for a CDMA transmitter-receiver capable of varying the transmission rate of the voice encoding on a sample by sample basis (Abstract). Abe refers to a variable rate for encoding. However, Abe does not teach or suggest variable rates of interleaving and puncturing, as recited in the amended independent Claims.

In contrast, in the present disclosure, and as recited in the amended independent Claims, the interleaving and puncturing are performed at two different rates so that the interleaving schemes do not depend on the rate of puncturing. Thus, interleaving and puncturing are performed at different variable rates with respect to each other so that one function does not depend on the other function, as recited in the amended Claims of the present disclosure. Support for such feature can be found at least at page 2, lines 23-25, page 3, lines 1-2, and page 7, lines 16-20 of the present disclosure. Abe clearly does not describe such process of decoding because Abe teaches a different type of decoding methodology related to an information distributor that divides a coded digital signal, and supplies the divided parts to an error correcting encoder and an interleaver in accordance with transmission rate information, so that the number of bits to be subjected to the error correcting coding varies in response to a transmission rate, thereby varying the total number of transmitted bits (Abstract).

Accordingly, the withdrawal of the rejection under 35 U.S.C. §103(a) with respect to Claim 6 and allowance thereof is respectfully requested.

Independent Claim 7 includes similar limitations to those of Claim 6, and is allowable over the prior art of record for at least the same reasons presented above for the patentability of independent Claim 6.

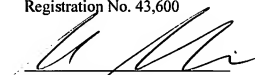
In view of the foregoing amendments and remarks, it is respectfully submitted that all Claims presently pending in the application, namely, Claims 1-7, are believed to be in condition for allowance.

If the Examiner should have any questions concerning this communication or feels that an interview would be helpful, the Examiner is requested to contact the undersigned.

Respectfully submitted,

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